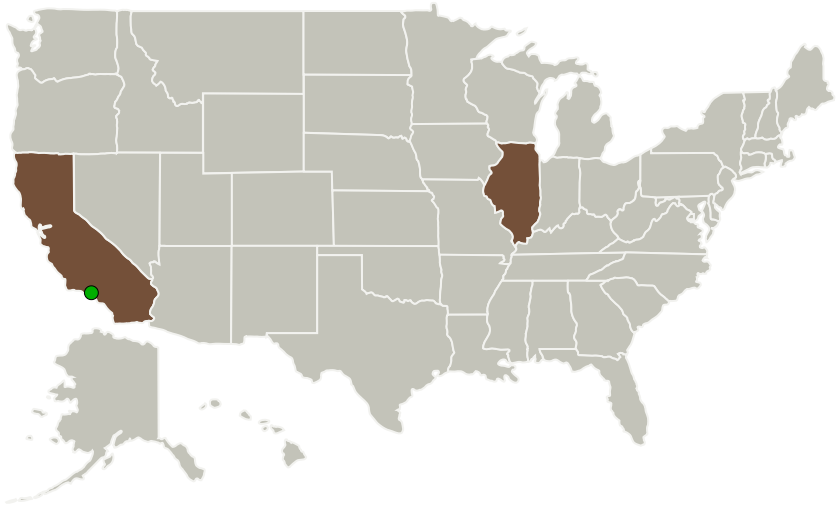
Micro GC's for Contaminant Monitoring in Spacecraft Air, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

The objective of this proposal is to create new gas chromatographs (GCs) for contaminant monitoring in spacecraft air that do not require any reagents or special carrier gases. Under DARPA support, Cbana has created a new class of microGCs that are smaller than ever before and yet show performance similar to those of full scale commercial GCs. In the proposed work we will redesign the GCs so that they can use air as a carrier gas. Key to the device is a very low pressure drop adsorbent bed that can capture the contaminants for analysis and produce a very pure air stream as a carrier gas. Phase I tests will be performed to optimize the performance of the adsorption bed and to verify that the GC columns work with air. The result will lead to a cabin air monitoring system that can detect all of the contaminants listed in the NASA report NASA report "Spacecraft Maximum Allowable Concentrations For Airborne Contaminants" and not require special carrier gases or reagents.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Cbana Laboratories	Lead Organization	Industry Women-Owned Small Business (WOSB)	Champaign, Illinois
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

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Primary U.S. Work Locations	
California	Illinois

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140082)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Cbana Laboratories

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Qingmei Chen

Co-Investigator:

Qingmei Chen

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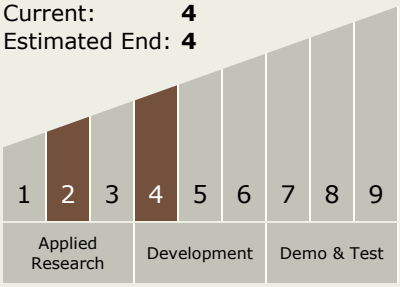
Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - TX06.4.1 Sensors: Air, Water, Microbial, and Acoustic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System